UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Kedua
Sidang Akademik 2005/2006

April/Mei 2006

EBS 328/3 - Geokimia Carigali

Masa : 3 jam

Sila pastikan bahawa kertas peperiksaan ini mengandungi EMPAT muka surat yang bercetak sebelum anda memulakan peperiksaan.

Kertas soalan ini mengandungi TUJUH soalan.

Jawab LIMA soalan. Jika calon menjawab lebih daripada lima soalan hanya lima soalan pertama mengikut susunan dalam skrip jawapan akan diberi markah.

Mulakan jawapan anda untuk setiap soalan pada muka surat yang baru.

Semua soalan mesti dijawab dalam Bahasa Malaysia.

...2/-

1. Huraikan atau tulis nota lengkap mengenai perkara-perkara berikut:

   (a) Nyatakan tujuan carigali geokimia.

   (b) Huraikan konsep serakan primer dan serakan sekunder.

   (c) Huraikan konsep anomali, nilai latar, nilai ambang, anomali palsu, serakan hidromorfik, dan halo tiris (leaked halos).

   (20 markah)

2. Jika anda ditugaskan mengetuai satu program carigali bijih besi di Pahang, huraikan satu persatu langkah-langkah yang akan anda lakukan sehingga selesai tugas anda. Gunakan carta alir untuk meringkaskan langkah-langkah tersebut.

   (20 markah)

3. Huraikan lima keadaan lapangan yang menuntut kaedah carigali geokimia digunakan. Gunakan lakaran di mana perlu.

   (20 markah)

...3/-

4. Tinjauan orientasi, tinjauan awal dan tinjauan terperinci adalah amat berlainan di antara satu sama lain. Dengan menyalin semula Jadual 1 berikut, huraikan dengan jelas perbezaan menurut enam topik yang diberikan.

Jadual 1

	Tinjauan Orientasi	Tinjauan Awal	Tinjauan Terperinci
1. Matlamat			
2. Ketumpatan sampel per km padu			
3. Saiz grid			
4. Sampel media			
5. Peralatan makmal			
6. Kos			

(20 markah)

5. Data carigali geokimia dapat dipaparkan dengan pelbagai cara, dan setiap satunya unik untuk dipersembahkan kegunaannya. Contoh: bar histogram, frekuensi bertokok histogram, *box-split*, analisis kelompok (*cluster analysis*), dan lain-lain lagi. Huraikan.

(20 markah)

6. Artikel berikut dipilih dari *Journal of Geochemical Exploration*. Baca artikel tersebut dan jawab soalan-soalan berikut:

(a) Nyatakan tujuan kajian.

(b) Nyatakan dapatan atau hasil kajian tersebut.

(c) Jika anda ditugaskan mencarigali bijih timah di sebuah sungai dengan menggunakan dapatan di atas, di manakah agaknya sasaran anda? Huraikan alasannya sekali.

(20 markah)

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7. Jadual 2 di bawah menunjukkan kepekatan Au dan As

Jadual 2

Hole No.	Au (ppm)	As (ppm)
1	0.15	16.8
2	0.24	115.2
3	1.20	384.0
4	0.00	172.8
5	0.00	893.2
6	0.00	80.0
7	1.30	239.2
8	0.07	37.8
9	0.00	708.0
10	0.00	4.0
11	0.00	88.0
12	1.08	252.0
13	0.00	261.0
14	0.00	294.8
15	0.00	45.0
16	0.49	256.2
17	0.00	170.1
18	0.35	987.0

(a) Bina bar histogram dan histogram bertokok.

(b) Dapatkan nilai min dan median.

(c) Dapatkan nilai latar, nilai ambang dan nilai anomali pada paras keyakinan 95%.

(d) Daripada plot histogram bertokok, dapatkan nilai anomali pada 95 persentil. Bandingkan dengan anomali yang anda kira pada (c). Adakah nilainya sama?

(e) Apa pandangan anda jika anda disuruh membuat pilihan di antara kedua nilai tersebut? Tulis komen anda.

(f) Dapatkan nilai korelasi. Tulis komen anda tentang hubungan Au-As tersebut.

(20 markah)

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TRANSLATION

UNIVERSITI SAINS MALAYSIA

Second Semester Examination
Academic Session of 2005/2006

April/May 2006

EBS 328/3 - Prespecting Geochemistry

Time : 3 hours

Please ensure that this paper consists of FOUR printed pages before you proceed with the examination.

This paper contains SEVEN questions.

Answer any FIVE questions. If a candidate answers more than five questions, only the first five answered will be examined and awarded marks.

Answer to any question must start on a new page.

All questions must be answered in Bahasa Malaysia.

...2/-

1. Discuss or write short notes on the following items:

   (a) The objectives of geochemical exploration

   (b) Discuss what is meant by primary and secondary dispersion.

   (c) Expand the concepts of anomaly, background values, threshold values, false anomaly, hydromorphic dispersion and leakage values.

(20 marks)

2. If you are given the task to design and implement an exploration program searching for an iron ore deposit in Pahang, using a flow chart diagram, please indicate the various steps you are going to propose till its successful execution.

(20 marks)

3. Discuss five field conditions that would require geochemical exploration to be used. Use sketches where necessary.

(20 marks)

4. Orientation survey, reconnaissance survey and detailed are very different from each other. Using the six items in the following table (Table 1), discuss in details their similarities and dissimilarities.

Table 1

	Orientation Survey	**Reconnaisance Survey**	**Detailed Survey**
1. Objectives			
2. Sample density/km2			
3. Grid size			
4. Sampling media			
5. Lab instruments to use			
6. Cost			

(20 marks)

...3/-

5. Geochemical exploration data can be represented in various ways and each of them are unique in their own ways. Examples include bar histogram, cumulative frequency histogram, box split, cluster analysis and many more. Discuss.

(20 marks)

6. The following article is taken from Journal of Geochemical Exploration. Read the abstract and answer the following questions:

(a) State the objective of the paper

(b) list down the findings of the research

(c) If you are given the task to explore for tin ore deposit in a similar river system, using similar findings from the research where do you look for the target? Explain.

(20 marks)

7. You are given the following data sets for gold and arsenic.

Table 2

Hole No.	Au (ppm)	As (ppm)
1	0.15	16.8
2	0.24	115.2
3	1.20	384.0
4	0.00	172.8
5	0.00	893.2
6	0.00	80.0
7	1.30	239.2
8	0.07	37.8
9	0.00	708.0
10	0.00	4.0
11	0.00	88.0
12	1.08	252.0
13	0.00	261.0
14	0.00	294.8
15	0.00	45.0
16	0.49	256.2
17	0.00	170.1
18	0.35	987.0

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(a) Plot bar histogram and cumulative frequency histogram.

(b) Calculate its mean and median values.

(c) Calculate its background values, threshold values and anomalous values using 95% confidence level.

(d) From the cumulative frequency histogram, obtain the anomaly value at 95% percentile. Compare the value with the calculated anomaly value? Are they different or similar?

(e) If you are given to choose between the two values, which one do you prefer? Why?

(f) Calculte its correlation value. Write your comment on the Au-As relationship.

(20 marks)

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